

Vrachtwagens op waterstof: dichterbij dan je denkt!

Bart De Keuster (Van Kessel) & Sharon van Beek (Quantron AG)

Vijfsterren Logistiek, 31 januari 2024

Voorstelling Van Kessel

- Familiebedrijf sinds 1921
- Gevestigd in Milheeze, gem. Gemert-Bakel
- Distributie van (duurzame) brandstoffen, smeermiddelen en energie
- Exploitatie van 42 tankstations + laadpunten
- 100 FTE
- Lean & Green Star



van Kessel

Brandstoffen voor de energietransitie

CO2-reductie

HVO20-50
Fossielarme diesel

TRAXX Diesel
Zuinige en schone diesel

LNG
Liquefied-Natural-Gas

CO2-neutraal

HVO100
Hernieuwbare diesel

TRAXX Zero
CO2-reductie + compensatie

Bio-LNG
Vloeibaar biogas

Zero-emissie

Elektrisch rijden
Slimme laadoplossingen
voor bedrijven en onderweg

Hydrozine
Elektrisch laden met het
gemak van een vloeistof

Waterstof
Strategisch netwerk
van tankstations

Waarom investeren wij in waterstof?

- Meerdere energievormen nodig voor energietransitie
- HVO, elektrisch en waterstof hebben allen specifieke voor- en nadelen
- Alle truckbouwers zijn aan het testen
- Waterstof brandstofcel & verbrandingsmotor
- Ervaring opdoen met waterstof = voorsprong opbouwen

Waterstof tankstation Nieuwegein



hysolar **GREENPOINT**
Pure fuel and energy

**100% duurzaam
vooruit met
waterstof**

Tankpas aanvragen? Bel 0492-79 29 68
of mail info@greenpointfuels.nl

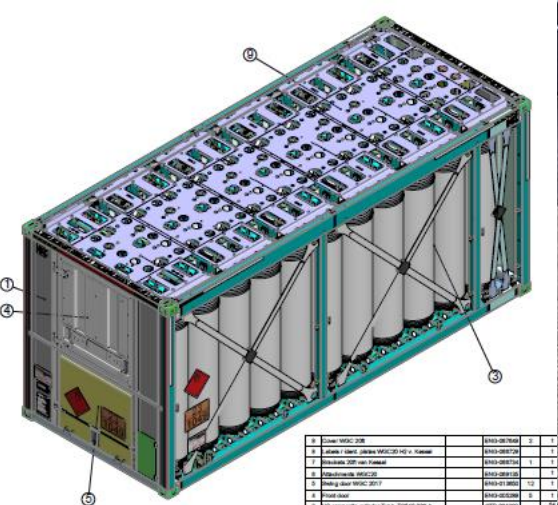
H₂
GREENPOINT

PIETERSE
Waterstof

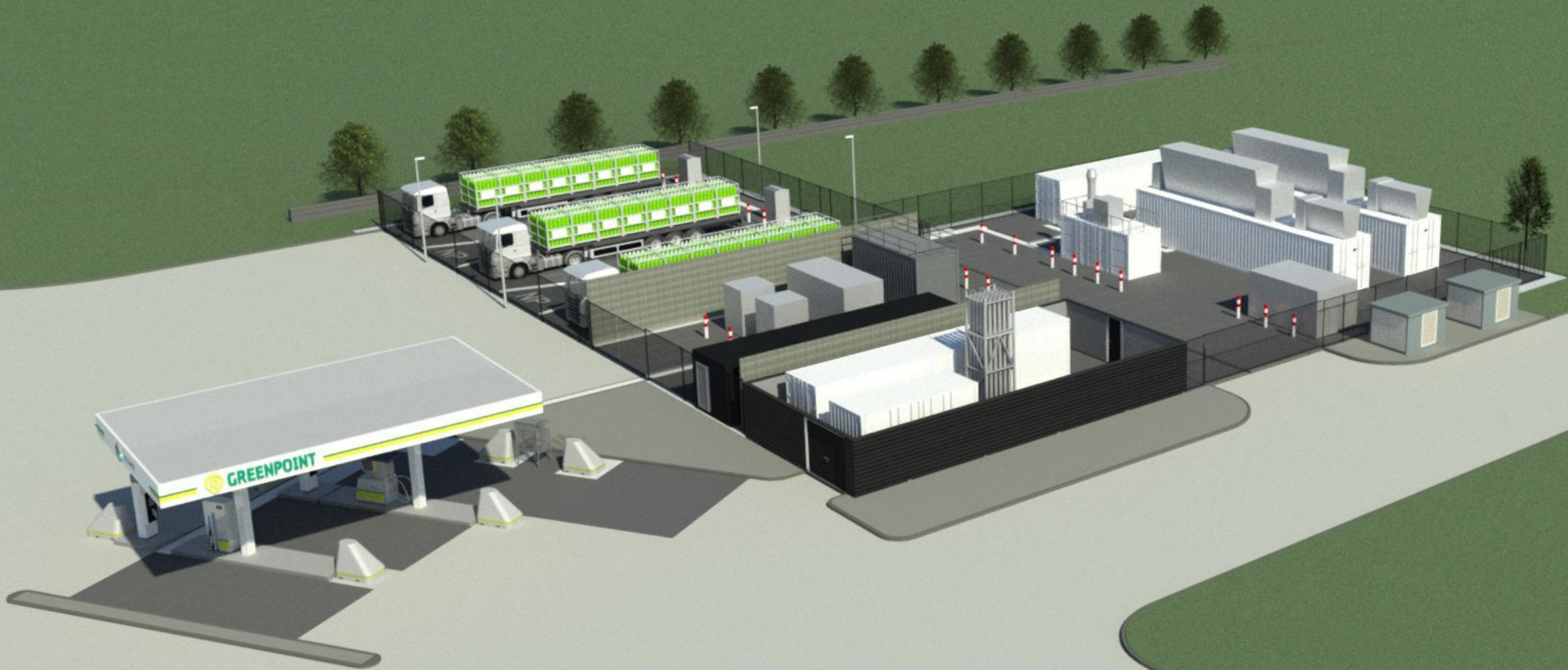
Waterstof tankstation Dordrecht



Distributie van waterstof met tube trailers



1	Deuren WVC20	4110-01704	1
2	Standaards WVC20	4110-01704	1
3	Standaards WVC20	4110-01704	1
4	Standaards WVC20	4110-01704	1
5	Standaards WVC20	4110-01704	1
6	Standaards WVC20	4110-01704	1
7	Standaards WVC20	4110-01704	1
8	Standaards WVC20	4110-01704	1



Productie groene waterstof

Wie tankt er waterstof?



Leverbaar in 2024



van Kessel

Sustainability becomes Reality Zero Emission Solutions for a better Future



QUANTRON



Empower the Future



QUANTRON Snapshot

Overview

Vision

To be the world's leading zero emission solutions platform for commercial vehicles

Mission

To use the best technology to design clean and responsible mobility solutions, that have a positive impact on the entire value chain and on our planet's future

What We Do


Engineer zero emission trucks, provide support services and develop the hydrogen energy infrastructure together with a group of partners which are each individually recognized leaders in their respective field of business

Differentiated From Others

Providing a unique holistic offering unlike no other player in today's market

We cover the entire hydrogen value chain and offer our clients an all-encompassing zero emission transportation solution, with QUANTRON FCEV trucks targeting TCO parity against ICE trucks through QaaS solution in the near term for selected markets



2019 Founded from 140 years of experience in commercial vehicles	Headquarters Augsburg, Germany	150 Vehicles on the road to date	50+ Top tier partnerships
130 Employees	€50m Equity raised to date with key blue-chip investors	>€28m In revenue since inception	700km+ Best-in-class available range for 44t FCEV EU truck
QaaS Hydrogen alliance ecosystem with TCO advantage	Up to €60m 2023E Total Revenue	€100m Order book and pipeline	 Global Footprint

Figures as of June 2023



Product Portfolio



QUANTRON with full range vehicle portfolio

100% zero emission since inception

BEV & FCEV: the right technology for individual use case requirements



FCEV
Available for orders TODAY
SOP Q2/2023
 (4.25 – 7.2 t)

BEV
Available TODAY
 (4.25 – 7.2 t)

BEV
Available TODAY
 (6x2 28t)

BEV
Available TODAY
 (4x2 44t / 6x2 65t)

FCEV
Available for orders TODAY
SOP Q3/2023
 (4x2 44t / 6x2 65t)

BEV
Available TODAY
 (12m low floor, city)

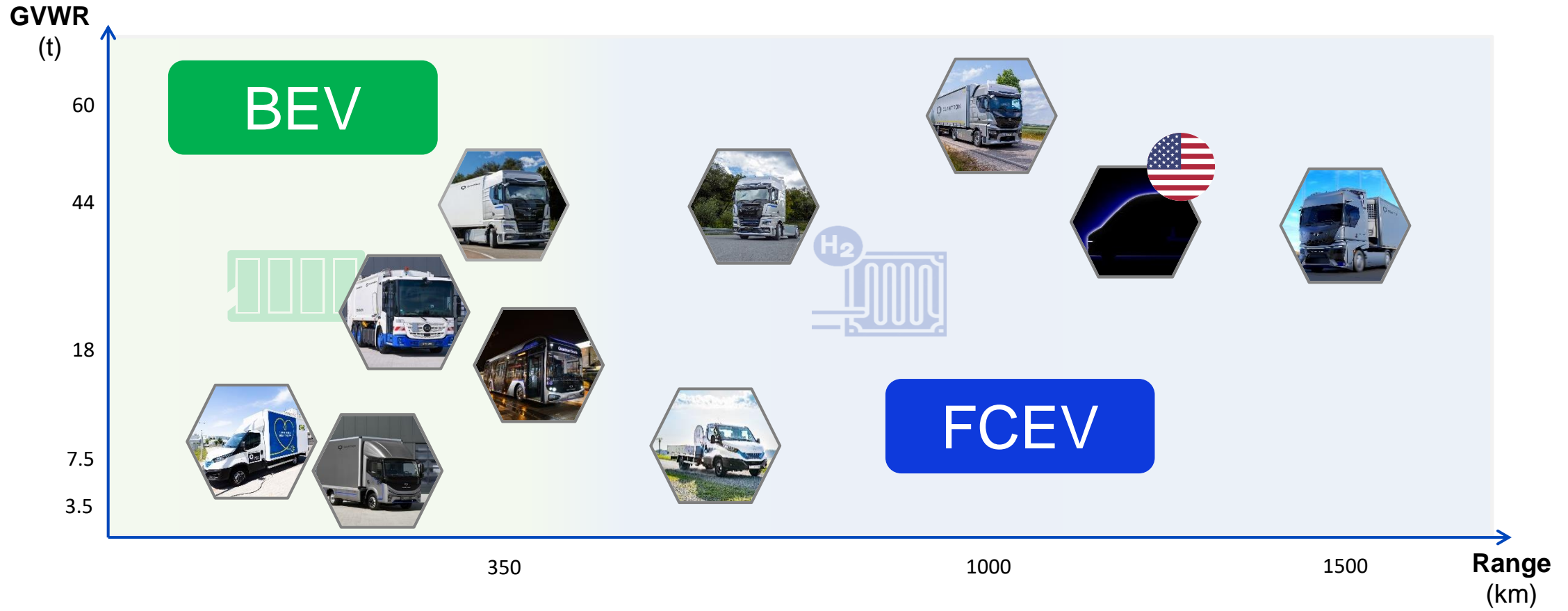
FCEV
Available on demand
 (12m low floor, city)

BEV
Available TODAY
 (4.25t)

FCEV
Available Q1/2024
 (to follow)



QUANTRON BEV and FCEV solutions – both technologies fulfill major needs of sustainable transportation



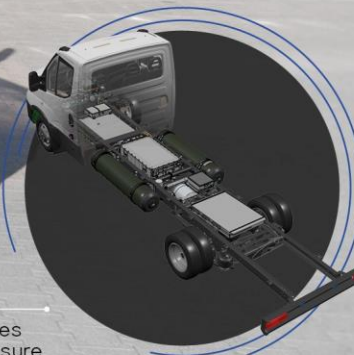
QUANTRON QLI FCEV

A versatile vehicle with a quiet and emission-free drive, ideal for various applications like logistics or inner-city deliveries, which can be tailored to your business requirements.

ZERO EMISSION - FULL H₂ POWER

Maximum efficiency

Thanks to its wide range of superstructures the Q-Light FCEV can be used flexibly in different areas of application, e.g. in the logistics industry or as a delivery vehicle.



Fuel Cell

45kW FCmove-MD fuel cell from the world's leading hydrogen expert Ballard Power Systems.

FCEV truck platform

QLI with its unique „package“ – utilizes renowned international partners to ensure high-quality equipment and safe technology are integrated in all its vehicles.

Features



Zero Emission Range
up to 450 km*
BEV only mode for short distances for maximum efficiency



Fuel Cell
Powerful fuel cell with up to 45 kW



H₂ Tank volume
8,2 kg H₂



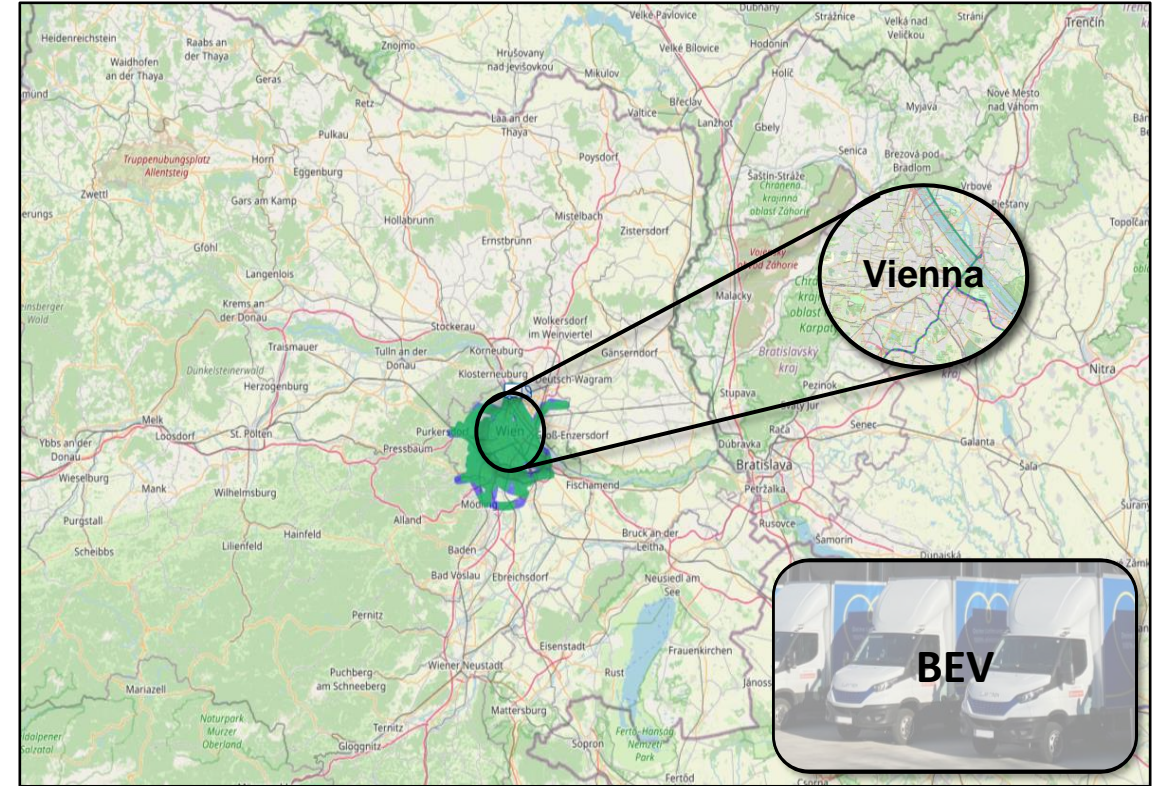
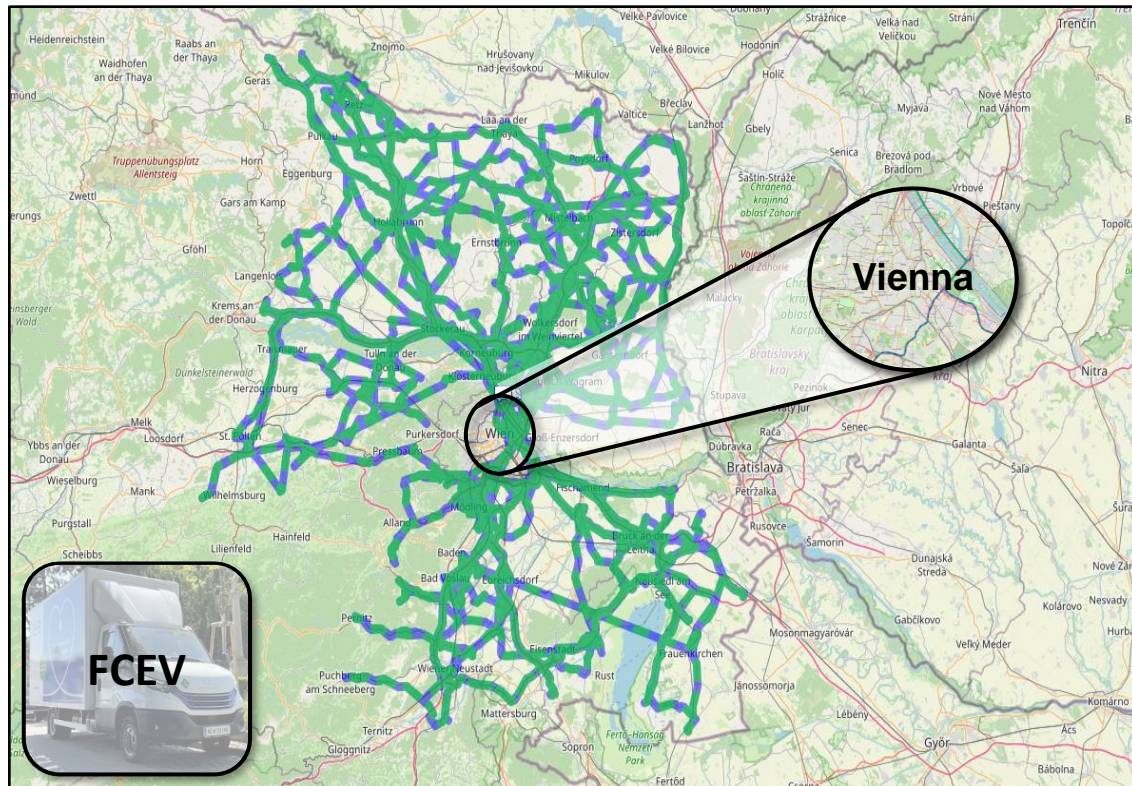
Refueling time
Short refueling times (similar to diesel)

*This is a preliminary simulated range.

Empower the Future

QUANTRON

A direct comparison with reality in the LCV segment makes it clear why both technologies are necessary



Trial run @Vienna, AT



Depot / Loading port

Total Payload: 1080kg
3 Passengers: 240kg

Refilling

665bar \approx 7,8kg H₂ = **85% SoF** (@ 90% SoC)
Non-Com Refilling

Customer A (267,7kg goods)

Remaining Payload: 812,3kg

Customer B (166,20kg goods)

Remaining Payload: 646,1kg

Slope Test

Remaining Payload: 646,1kg
Slope of $\geq 10\%$ in PWR-Mode (150kW)
at ≥ 50 kmh

Customer C (645,6kg goods)

Remaining Payload: 0kg

Depot / before Refilling

H₂ = **5,5% SoF** (@ 58% SoC)

Range Calculation:

Unused H₂:
100% - 85% + 5,5% = 20,5%
= 1,68kg H₂
 \approx 70km out of H₂

*SoC 58% = 21,5 kWh \approx 47km

Possible max. Total Range: **393km**
(275km + 70km + 47km)

(*Driving purely out of battery not recommended as a reserve is kept)





ZERO EMISSION - FULL H₂ POWER

H₂ Range Champion
1

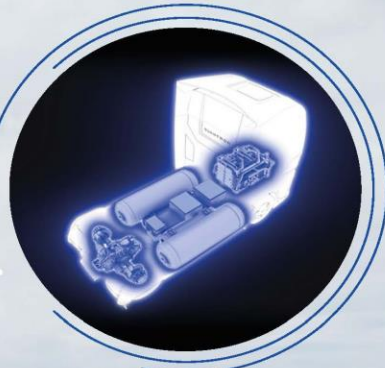
Maximum efficiency

Improved aerodynamics with the new design, reaching 20% drop in the drag coefficient, resulting 10% increase in the overall range!



Interior

Sustainability is not just about our zero emission vehicles, but also about our recycled textiles and sustainable materials used in the interior.



FCEV truck platform

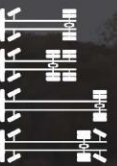
QHM with it's unique „package“ – utilizes renowned international partners to ensure high-quality equipment and safe technology are integrated in all its vehicles.

Features

 Zero Emission range champion
700 - 1500 km

 ISO Trailer compatible and standard length possible

 H₂ Tank volume
54 - 116 kg H₂ @700 bar

 Axle config.
4x2 tractor
6x2 tractor
4x2 chassis
6x2 chassis

 Refueling time
15 minutes

Fuel Cell

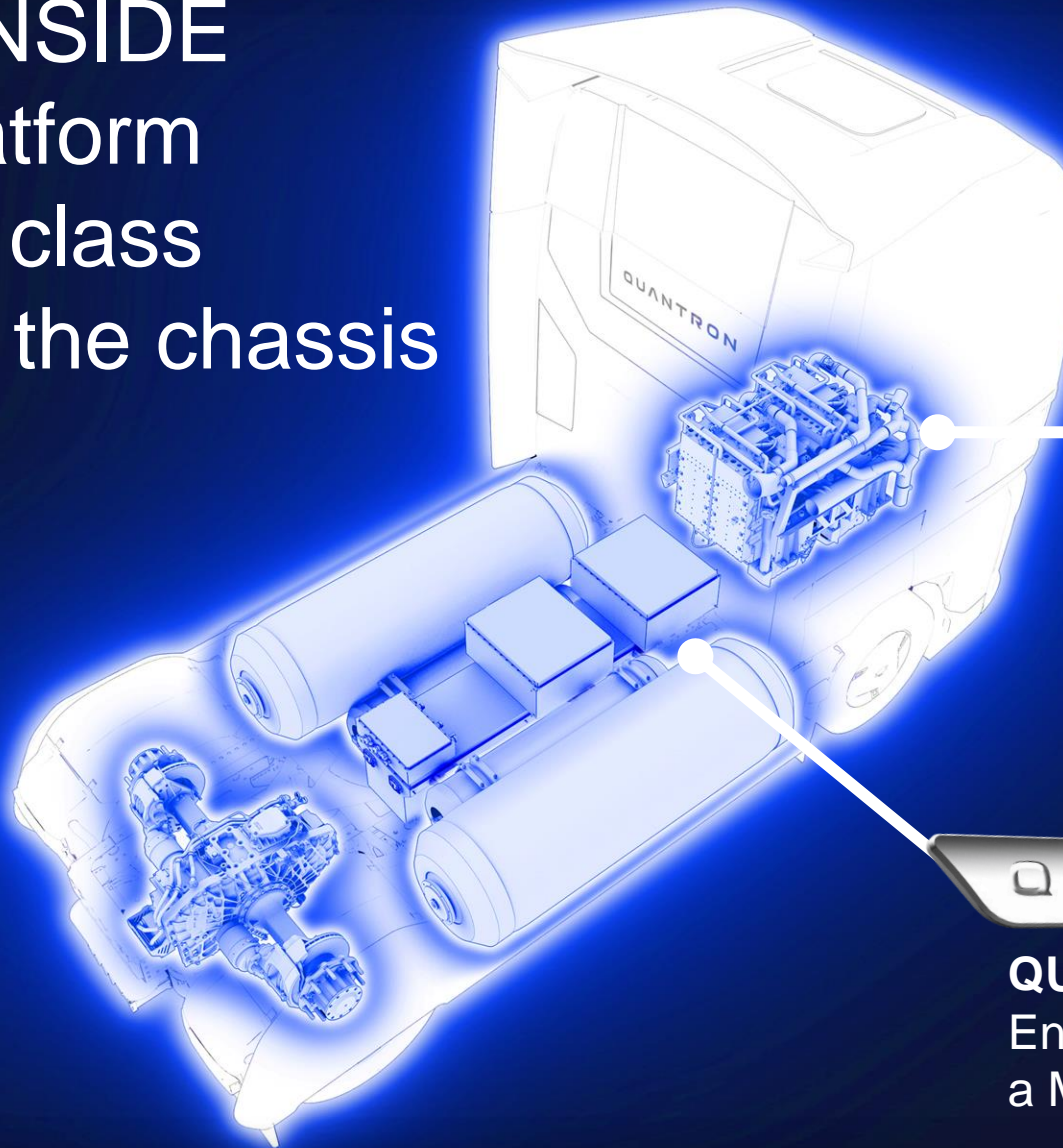
240 kW (2 x 120 kW FCmove™-XD fuel cell) from the world's leading hydrogen expert Ballard Power Systems.



QUANTRON QHM FCEV AERO



QUANTRON INSIDE FCEV truck platform bundling world class components in the chassis



QUANTRON INSIDE
Energy Management System for
a Maximum Efficiency & Range

After-sales



Service Network: Strong Partnership with Alltrucks

Full-service workshop concept:
Service, maintenance and repair at the highest level for all manufacturers.

- > 700 potential service points
active service points/microfactories
technology partners
- Working with Penske corporation USA for after sales support
- Distribution agreements for independent markets



Light Truck:



Heavy Truck:




Buses and Trucks




...as shown @ IKEA fleet in Austria


Key Indicators:




55
Vehicles delivered



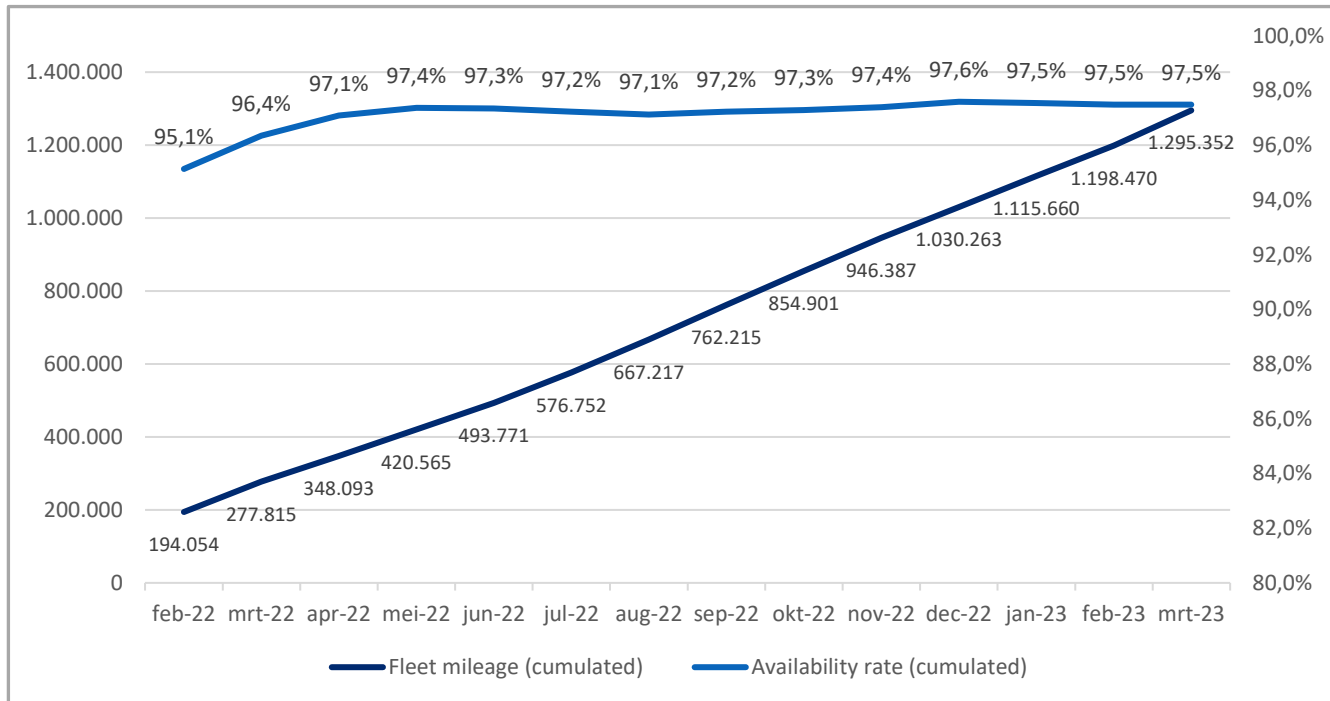
1.3 Mio km
Overall mileage



97.6%
Overall vehicle availability



516 t
CO₂ emissions avoided



Have you heard
about the new normal?

Zero Emission. Full Power. Better Future



QUANTRON



Investeren in een waterstof voertuig mét garantie van een tankstation in de buurt

Subsidieregeling Waterstof in Mobiliteit (SWiM)

Subsidieregeling IenW

- Subsidieregeling 125 miljoen
- Van 2024 tot en met 2028
- Voor waterstof tankstations + vrachtwagens en bestelauto's ("kip en ei")
- Gezamenlijke aanvraag ondernemers en tankstation
- 10 á 15 H2 voertuigen per station (mag verspreid over meerdere bedrijven)

Subsidie waterstof voertuigen

- Wat kan aangevraagd worden:
 - Max. 40% van bouw tankstation
 - Max. 80% van meerprijs van vrachtwagen of bestelbus
- Van € 50.000 tot € 300.000 per voertuig
- 3 jaar na aanvraag in gebruik nemen
- Zowel brandstofcel als verbrandingsmotor

- € 50.000 per emissievrij licht waterstofvoertuig van categorie N1;
- € 150.000 per emissievrij zwaar waterstofvoertuig van categorie N2 dat voorzien is van een brandstofcel;
- € 50.000 per emissievrij zwaar waterstofvoertuig van categorie N2 dat voorzien is van een waterstofverbrandingsmotor;
- € 180.000 per emissievrij zwaar waterstofvoertuig van categorie N3, type bakwagenchassis, dat voorzien is van een brandstofcel;
- € 300.000 per emissievrij zwaar waterstofvoertuig van categorie N3, type opleggetrekkert, dat voorzien is van een brandstofcel;
- € 60.000 per emissievrij zwaar waterstofvoertuig van categorie N3, type bakwagenchassis, dat voorzien is van een waterstofverbrandingsmotor;
- € 100.000 per emissievrij zwaar waterstofvoertuig van categorie N3, type opleggetrekkert, dat voorzien is van een waterstofverbrandingsmotor;
- € 100.000 per emissievrij licht waterstofvoertuig van categorie M1;
- € 150.000 per emissievrij licht waterstofvoertuig van categorie M2;
- € 300.000 per emissievrij zwaar waterstofvoertuig van categorie M3 dat voorzien is van een brandstofcel;
- € 100.000 per emissievrij zwaar waterstofvoertuig van categorie M3 dat voorzien is van een waterstofverbrandingsmotor.

Potentiële locatie: Veghel Doornhoek



Potentiële locatie: Haps Laarakker



Greenpoint waterstof locaties



Interesse in rijden op waterstof?

- Wij hebben geschikte locaties voor tankstations
- Wij zoeken bedrijven die in waterstof trucks of bussen willen investeren
- Eind februari: Quantron truck bij Greenpoint Oude-Tonge
- Kick-off meeting met geïnteresseerde ondernemers
- Doel: gezamenlijk intekenen op de subsidie



Interesse of op de hoogte blijven? Meld je aan:

<https://www.vankesselolie.nl/subsidieregeling-waterstof-in-mobiliteit/>

Vragen? Neem gerust contact op!

Bart De Keuster

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Bedankt voor uw aandacht!

www.vankesselolie.nl
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